Financial Econometrics (CLAMFIM), A. Y. 2014-2015

List of topics discussed during classes

21 ottobre 2014

In this document I provide a detailed list of topics discussed during classes (the corresponding paragraphs in Verbeek (english, 4th edition, 2012) are reported in parenthesis). The list is complete.

1. [**18/9/2014**] Introduction to the course. Linear regression models: review of notation, OLS definition, finite sample properties, classical assumptions (slides intro, endogeneity 1-4; Verbeek ch. 5 introduction, 5.1).

2. [**19/9/2014**] Linear regression models: review of asymptotic properties of OLS estimators under weaker assumptions. Application in Stata to the analysis of risk premia in currency markets (slides endogeneity 5-6, 10-19; Verbeek 5.1, 4.11).

3. [**22/9/2014**] Linear regression models: OLS and robust standard errors. Application in Stata to the analysis of risk premia in currency markets. Cases where OLS can't be saved: lagged dependent variables and autocorrelated errors, measurement error in the regressors (slides endogeneity 7-9, 20-31; Verbeek 5.1, 5.2 intro, 5.2.1, 5.2.2, 4.11).

4. [**23/9/2014**] Linear regression models: endogeneity and omitted variable bias, simultaneity and reverse causality. IV estimation: a single endogenous regressor and a single instrument. Application in Stata to the estimation of the return to education (slides endogeneity 32-46, 54-56; Verbeek 3.2.1, 5.2.3, 5.2.4, 5.3.1, 5.4).

5. [**25/9/2014**] Linear regression models: properties of IV estimation: consistency, asymptotic distribution, robust standard errors. Test of relevance and Hausman test of endogeneity. IV estimation with multiple endogenous regressors and instruments. Applications in Stata to the estimation of the return to education (slides endogeneity 47-53, 57-58; Verbeek 5.3.1, 5.3.3, 5.3.4, 5.4).

6. [**26/9/2014**] Linear regression models: Generalized Instrumental Variables estimation. Applications in Stata to the estimation of the return to education (slides endogeneity 54-56, 59-71, 73-78; Verbeek 5.5, 5.5.1, 5.5.2, 5.5.4).

7. [**29/9/2014**] Linear regression models: Generalized Instrumental Variables estimation and Sargan's overidentifying restrictions test. Applications in Stata to the estimation of the return to education. GMM: Introduction, CCAPM and the Stochastic Discount Factor, pricing equations; GMM theory (slides endogeneity 72, gmm 1-14; Verbeek 5.5.3, 5.6, 5.6.1, 5.6.2).

8. [**30/9/2014**] GMM: A few simple examples in theory and practice: estimation of a population mean, GIV and OLS as GMM special cases with an application to a time series test of the SML. Application in Stata to the estimation of the CCAPM/SDF model (slides gmm 15-23; Verbeek 5.6.3, 5.6.4, 5.7).

9. [**2/10/2014**] GMM: Application in Stata to the joint time series test of the CAPM and to the estimation of the CCAPM/SDF model. Panel data models: Introduction, definitions and notation. Random effects hypothesis (slides panel1 1-4; Verbeek ch. 10 Introduction, 10.1).

10. [**3/10/2014**] Panel data models: Random effects hypothesis, fixed effects hypothesis, efficiency and identification in panels, fixed effects of within estimator, first difference estimator. Applications in Stata to the estimation of a wage equation (slides panel1 3-22; Verbeek 10.1, 10.1.1, 10.1.2, 10.2 introduction, 10.2.1, 10.2.2, 10.3).

11. [**6/10/2014**] Panel data models: Differences-in-differences estimator. GLS, feasible GLS and Random Effects estimators: definitions and properties. Applications in Stata to the estimation of a wage equation (slides panel1 23-39; Verbeek 10.2.2, 10.2.3, 4.2, 10.3).

12. [**7/10/2014**] Panel data models: Comparison between OLS, FE, BE and RE. Choosing between FE and RE, Hausman test, goodness of fit, FE as an IV estimator, alternative IV estimators. Applications in Stata to the estimation of a wage equation (slides panel1 40-55; Verbeek 10.2.3, 10.2.4, 10.2.5, 10.2.6, 10.3).

13. [**9/10/2014**] Panel data models: Robust inference and diagnostic tests in static linear panel data models; Fama and MacBeth regressions. Dynamic panel data models: introduction, inconsistency of standard estimators. Applications in Stata to the analysis of firm's capital structure (slides panel1 56-62, panel2 1-12; Verbeek 10.2.7, 10.2.8, 10.2.9, 10.4 introduction, 10.4.1, 10.5).

14. [**10/10/2014**] Dynamic panel data models: Anderson-Hsiao FD IV estimators with instruments in levels and differences; Arellano-Bond GMM estimators. Applications in Stata to the analysis of firm's capital structure. Maximum likelihood theory: introduction and first example (slides panel2 13-34, loglik 1-5; Verbeek 10.4.1, 10.4.2, 10.4.3, 10.5; 6 introduction, 6.1.1).

15. [**13/10/2014**] Maximum likelihood theory: examples, definitions and notation, general properties, computational aspects (slides loglik 6-17; Verbeek 6.1.2).

16. [**14/10/2014**] Maximum likelihood theory: examples reexamined, three test principles: Wald, LR and LM, definitions and notation, general properties, computational aspects (slides loglik 18-32; Verbeek 6.1.3, 6.1.4, 6.2 introduction, 6.2.1, 6.2.2, 6.2.3, 6.4 introduction, 6.4.1).

17. [**16/10/2014**] Maximum likelihood theory: misspecified likelihood and quasi maximum likelihood estimation; robust "sandwich" standard errors and variances. ARCH models: introduction, ARCH(1) and ARCH(p): definitions and properties.

LM test for ARCH effects. Applications in Stata to the daily S&P 500 stock index returns (slides loglik 33-38, arch 1-9; Verbeek 6.4.1, 8.11 introduction, 8.11.1).

18. [**17/10/2014**] ARCH models: LM test for ARCH effects, Generalized ARCH models, IGARCH, TGARCH, EGARCH, GARCH-M, ML estimation, conditional normality, unconditional nonnormality and heteroskedasticity. Applications in Stata to the daily S&P 500 stock index returns (slides arch 10-23; Verbeek 8.11.1, 8.11.2).

19. [**20/10/2014**] ARCH models: ML estimation of ARCH, GARCH, EGARCH and TGARCH. Standardized residuals and test on the conditional distribution. Applications in Stata to the daily S&P 500 stock index returns (slides arch 24-36; Verbeek 8.11.2).

20. [**21/10/2014**] ARCH models: Standardized residuals and test on the order of the ARCH/GARCH model. Volatility predictions and volatility forecasts. Applications in Stata to the daily S&P 500 stock index returns. Solution of exercise n. 3 of the first optional training session (slides arch 37-45; Verbeek 8.11.2).